

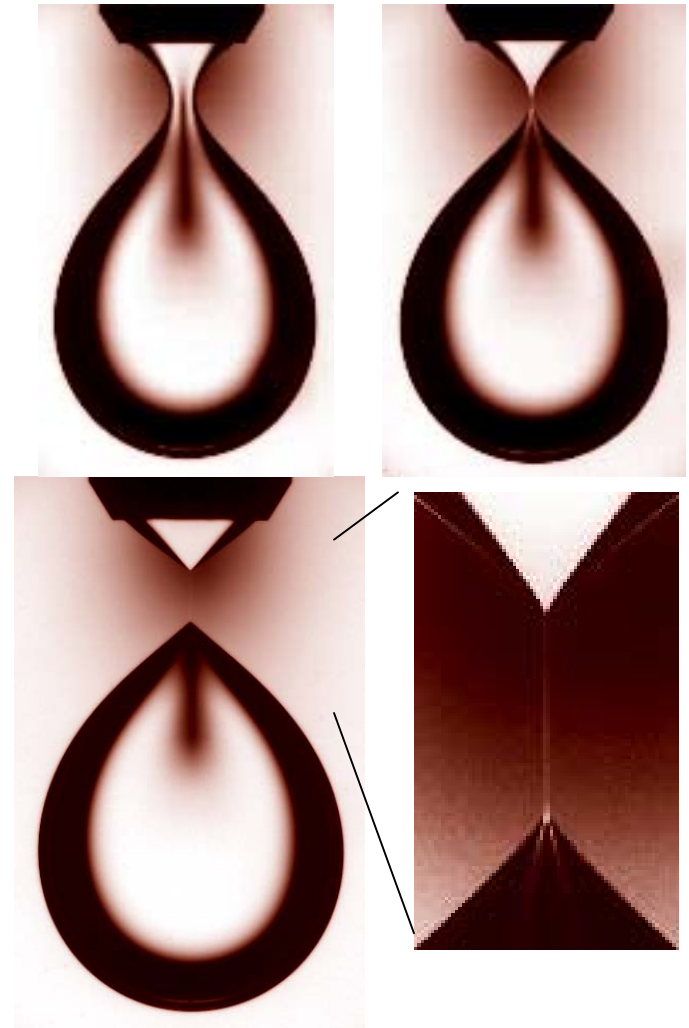
PERSISTENCE OF MEMORY IN DROP BREAKUP

NSF DMR-0089081

P. Doshi,¹ I. Cohen,² Wendy Zhang,² M. Siegel,³ P. Howell,⁴
O. A. Basaran,¹ Sidney Nagel²

¹ Purdue ² University of Chicago ³ NJ Institute of Technology, ⁴ Mathematical Institute

Whenever water, entrained in thick oil, breaks apart, an unusual singularity occurs: the final shape retains an imprint of initial conditions. The last image is an enlarged photograph of the long thin fluid thread region just prior to breakup. The unusual nature of this breakup suggests a novel and controllable method for producing sub-micron structures.



Jamming: Fluids and Singular Flows

Sidney R. Nagel, University of Chicago, NSF DMR-0089081

Education: From 2000 to 2003, 6 undergraduates have done research in the PI's labs: A. Bushmaker, J. Erikson, K. Matan, M. Niemuth, M. Spannuth, and R. Williams. During this time the PI has mentored 8 graduate students: Daniel Blair, Xiang Cheng, Itai Cohen, Eric Corwin, Milica Medved, Matthias Möbius, Nathan Mueggenburg, and Daniel Mueth.

Outreach: In an attempt to communicate the beauty of the phenomena studied the PI has presented images from his research to a wider public with photographs appearing in newspapers, textbooks, and art galleries. He has also served as co-director of the National Science Olympiad for junior-high and high school students.

Nagel as co-director of the national Science Olympiad and at the SciTech Museum/UofC workshop in Aurora.

